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Protecting Aquatic Life and Human Health from Chemicals and Microbes in Water

From EPA

Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources. EPA/600/D-11/001. Possible contamination of drinking water resources from natural gas drilling.
Go to Report or water.epa.gov/type/groundwater

Go to Report or www.epa.gov/iris

Go to Article or www.epa.gov/ncl

EPA and HHS Announce New Scientific Assessments and Actions on Fluoride. Working to maintain benefits of preventing tooth decay while preventing excessive exposure.
Go to Article or water.epa.gov/drink

EPA Expands and Enhances WCIT: A Robust Tool for the Water Sector. Added 700 contaminants and 212 analytical methods to online database profiling contaminants of concern.
Go to www.epa.gov/wcit

EPA Awards $7 Million to Study Effects of Pollution Exposures and Social Stressors on Communities. Research grants aim to gather comprehensive community wide data on human health impacts.
Go to Article or www.epa.gov/ncer/cumulativerisk

EPA Awards $5.5 Million to Support Nanotechnology Research. Research to help determine whether health and environmental risks exist.
Go to Article or www.epa.gov/nanoscience

Go to Report or www.epa.gov/nrmrl

Go to Report or www.epa.gov/nrmrl
New Robot System to Test 10,000 Chemicals for Toxicity. Purchased by the Tox21 collaboration, which merges resources to develop ways to predict how chemicals will affect human health and the environment. Go to Article or www.epa.gov/nect

Embracing Change: The Next Generation of Risk Assessment. New practices to match pace of discoveries as they relate to human and environmental health. Go to Article or www.epa.gov/risk/nexgen

Problem Formulation for Human Health Risk Assessments of Pathogens in Land-Applied Biosolids. EPA/600/R-08/035F. Includes literature studies; pathogen stressors; conceptual models; risk assessment evaluation; existing tools/methodologies. Go to Report or www.epa.gov/ncea


Quality Assurance and Quality Control Practices for Rehabilitation of Sewer and Water Mains. EPA/600/R-11/017. Interviewed with vendors, engineers, and utilities that use trenchless rehabilitation technologies. Go to Report or www.epa.gov/nrmrl


National Study Explores the Reaction and Transport of Tungsten in Drinking Water. Investigates how concentrations change along groundwater flow paths and modify the groundwater makeup. Go to Article or www.physorg.com

Using Mining By-Products to Reduce Algal Blooms. CSIRO. Can prevent nutrients from entering river systems, thereby reducing algal blooms. Go to Article or www.csiro.au

WERF - Diagnostic Tools to Evaluate Impacts of Trace Organic Compounds. Prioritizes TOrcs of most concern; develops framework to identify TOrcs by source type, exposure-response models for high priority TOrcs, and a relational database of TOrc exposure and effects data. Go to Article or www.werf.org

WaterRF - Iodoacids in Drinking Water Supplies: Methods and Occurrence. Weinberg, H.S., et al., 2011. #3175. Develops method for measuring iodoacetic acids to low levels in drinking water, studies mechanistic pathways of formation, and conducts an occurrence survey of source water quality and treatment scenarios likely to produce iodoacids. Go to Report or www.waterrf.org

NIH Launches Largest Oil Spill Health Study. Studying health effects of the oil spill on 55,000 cleanup workers and volunteers; largest health study of its kind ever conducted among this population. Go to Article or www.niehs.nih.gov

In Hot Water: Rising Public Health Concerns from Changing Ocean Conditions. Meeting session covered health effects of changes in harmful algal bloom seasons and toxicity, global production and oceanic deposition of desert dust, and in storm event frequency. Go to Article or oceansandhumanhealth.noaa.gov

WERF's Paul L. Busch Award Offers $100,000 for Innovative Water Quality Research. Award to encourage researchers working in wastewater, water reuse, biosolids, stormwater, watersheds, and other areas. Go to Article or www.werf.org/PaulLBusch

From Collaborators

WERF - Measuring Water Ingestion among Water Recreators. Used survey research and environmental chemistry methods to evaluate rates of water ingestion during swimming, canoeing/kayaking, and wading/fishing to address knowledge gap. Go to Article or www.werf.org
EA Engineering, Science, and Technology, Inc. Wins Engineering Excellence Merit Award from ACEC/Nebraska for Groundwater Nitrate Investigation Project. Investigation of elevated nitrate levels affecting community water systems in the Lower Platte South Natural Resources District of Nebraska.

Go to Article or www.eaest.com

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**Upcoming Meetings**


Innovative and Affordable Tools and Technologies for Sustainable Public Health Protection

From EPA


Go to Report or www.epa.gov/nrmrl


Go to Report or www.epa.gov/nrmrl


Go to Report or www.epa.gov/etv


Go to Report or water.epa.gov/scitech/wastetech


Go to Report or www.epa.gov/nrmrl

Removal of Inorganic, Microbial, and Particulate Contaminants from Secondary Treated Wastewater - Village Marine Tec. Expeditionary Unit Water Purifier, Generation 1.

Go to Article or www.epa.gov/etv

Climate Resilience Evaluation and Awareness Tool (CREAT). Designed for water and wastewater utilities to assess the risk of potential climate change impacts.

Go to Tool or water.epa.gov/infrastructure

From Collaborators

Assessment of Water Reuse as an Approach for Meeting Future Water Supply Needs. Potential for water reclamation and reuse of municipal wastewater to expand and enhance the nation’s water supply alternatives.

Go to Report or dels.nas.edu

WaterRF - Simultaneous Oxidation and Removal of As(III) and As(V) by Electrocoagulation-Filtration. Lakshmanan, D., et al., 2011. #3160. Determines the technical and economic feasibility of using electrocoagulation-filtration for arsenic removal.

Go to Report or www.waterrf.org


Go to Report or www.waterrf.org

WERF - Nutrient Management Volume II: Removal Technology Performance & Reliability. Statistical variability is a characteristic of all plants and should be recognized in technology evaluation and in determining appropriate effluent limits.

Go to Report or www.werf.org


Go to Report or www.waterrf.org

Go to Article or www.inotec.us


Go to Presentations or www.nwri-usa.org

WERF - Nanomaterials Provide Boost to Biosolids Dewaterability and Odor Reduction. Adding to dewatering polymers led to lower polymer dose, improved filtrate quality, and reduced odors.

Go to Article or www.werf.org

WERF - Quantitative Tools to Determine the Expected Performance of Wastewater Soil Treatment Units. Includes literature and model review, toolkit user's guide, Excel spreadsheet tools (STUMOD and N-CALC), and supplemental information.

Go to Report or www.werf.org


Go to Report or www.globalwaterresearchcoalition.net


Go to Report or www.werf.org


Go to Article or www.desalination.biz


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Upcoming Meetings

26th Annual WaterReuse Symposium. September 11-14, 2011 in Phoenix, AZ.
Go to www.watereuse.org/conferences/symposium/26

Go to www.watereuse.org/conferences/potable/11

Go to www.weftec.org

WaterSmart Innovations Conference and Exposition. October 5-7, 2011 in Las Vegas, NV.
Go to www.watersmartinnovations.com

Go to www.iwa-waterloss.org/2012

Go to www.wefc.org/energy

Go to www.watersmartinnovations.com

Go to Meeting Page or www.ngwa.org

Go to www.bae.ncsu.edu/stormwater/2011lid
Ecological Systems Approach to Protect and Restore Sustainable Water Quality and Water Quantity on a Watershed Basis

From EPA

**Coming Together for Clean Water: EPA’s Strategy to Protect America’s Waters.** Framework for how EPA’s national water program will address the challenges; EPA’s priorities for achieving clean water goals.

Go to Report or water.epa.gov

**EPA Takes Step to Improve Lake Champlain Water Quality.** Work with Vermont to develop plan for reductions in phosphorus. Elevated levels cause algae blooms and other water quality problems.

Go to Report or www.epa.gov/region1/eco/tmdl


Go to Report or www.epa.gov/nerl

**The Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields.** EPA/600/R-09/138F. National Center for Environmental Assessment.

Go to Report or www.epa.gov/ncea

**Can Rain Barrels and Gardens Help Keep Sewage in the Sewers?** Investigates how they retain stormwater and how to motivate the public to adopt these “green” practices.

Go to Article or www.epa.gov/nrmrl/std/seb

**EPA to Open Public Comment on Proposed Standards to Protect Aquatic Ecosystems.** Protect billions of fish and other aquatic organisms drawn into cooling water systems each year.

Go to Article or water.epa.gov/lawsregs

**NCEA - Climate Change Vulnerability Assessments: Four Case Studies of Water Utility Practices.** EPA/600/R-10/077F.

Go to Report or www.epa.gov/ord/npd

From Collaborators

**Effects of the Deepwater Horizon Mississippi Canyon-252 Oil Spill on Ecosystem Services in the Gulf of Mexico.** Framework to assess the effects of the oil spill within the context of other human activities.

Go to Article or www.nationalacademies.org

**Scientists Discover Invasive Mussel Killing Bacteria.** California company preparing commercial product to control the environmentally hazardous zebra and quagga mussels.

Go to Article or www.nysm.nysed.gov


Go to Report or el.erdc.usace.army.mil

**Measuring Forestry’s Impact on Water Availability.** Tools from CSIRO help water managers better estimate how forest plantations affect stream flows.

Go to Article or www.csiro.au

**USACE - Meeting Water Quality and Water Control Objectives in River Basins with Multiple Reservoirs.** ERDC TN-SWWRP-11-2. Tool to help determine if temporal and spatial distribution of water quality is met at right place and time for an operational change.

Go to Report or el.erdc.usace.army.mil
USACE - Hydrologic Analyses for Stream Restoration Design. Fischeningh, J.C. and S.K. McKay, 2011. ERDC TN-EMRRP-EBR-8. Planners should focus on hydrologic and geomorphic factors when evaluating ecosystem restoration (e.g., magnitude/duration of peak annual discharge, duration of low flow conditions, etc.). Go to Report or el.erdc.usace.army.mil

National Assessment of Shoreline Change: Historical Shoreline Change along the New England and Mid-Atlantic Coasts. Hapke, C.J., et al., 2011. 68% of beaches in this area eroding. Go to Article or woodshole.er.usgs.gov


Managed Retreat of Coastal Communities: Understanding Responses to Projected Sea Level Rise. Alexander, K. S., et. al., 2011. A meta-theoretical social functionalist framework to analyze the range of personal concerns and responses to proposed policy options for vulnerable coastal shorelines. Go to Report or www.csiro.au

WERF - Canine Scent and Microbial Source Tracking in Santa Barbara, CA. Pilot-scale study results show canine scent tracking should be expanded for use by researchers and stormwater managers. Go to Article or www.werf.org


The Last Drop: Climate Change and the Southwest Water Crisis. Ackerman, F. and E.A. Stanton, 2011. Stockholm Environment Institute. Sustainable water use will require strong residential adaptation, or strong agricultural adaptation (e.g., elimination of low-value crops) with moderate residential measures. Go to Report or www.sei-us.org/publications

Clearinghouse for Dam Removal Information as a Watershed Restoration Resource. Go to digital.library.ucr.edu/cdri

Two-Stage Ditches Reduce Downstream Nutrient Transport Exit. The Nature Conservancy (Indiana). Floodplain benches with grasses on either side of a flow channel in a ditch reduce time and funding that many counties spend maintaining the ditches. Go to Article or www.nature.org


Preparing for the Third Decade (Cycle 3) of the National Water-Quality Assessment (NAWQA) Program. Go to Article or www.nationalacademies.org


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**Upcoming Meetings**


Go to [Meeting Page](http://www.ngwa.org) or [www.ngwa.org](http://www.ngwa.org)


Go to [www.awra.org/meetings/ABQ2011](http://www.awra.org/meetings/ABQ2011)


Go to [Meeting Page](http://www.ngwa.org) or [www.ngwa.org](http://www.ngwa.org)


Go to [www.fcsom.gov/events](http://www.fcsom.gov/events)
Clean Water is Americans’ Top Environmental Concern

At least three in four Americans surveyed in Gallup’s 2011 Environment poll worry about water contamination. Respondents were asked if they personally worry about contamination of soil and water by toxic waste, pollution of rivers, lakes, and reservoirs, pollution of drinking water, and the maintenance of the nation’s supply of fresh water for household needs. Interestingly, Americans are less worried today than they were 10 years ago about these same issues Gallup measured in 2001. The decline spans a period when the public often expressed surging concern about terrorism, the Iraq war, gas prices, and the economy.

Percent of Americans that Worry about Environmental Problems *

<table>
<thead>
<tr>
<th>Environmental Problem</th>
<th>2011</th>
</tr>
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<tbody>
<tr>
<td>Contam of Soil/Water by Toxic Waste</td>
<td>79%</td>
</tr>
<tr>
<td>Pollute River/Lake/Reservoir</td>
<td>79%</td>
</tr>
<tr>
<td>Pollute Drinking Water</td>
<td>77%</td>
</tr>
<tr>
<td>Maintain Fresh Water for Households</td>
<td>75%</td>
</tr>
<tr>
<td>Pollute Air</td>
<td>72%</td>
</tr>
<tr>
<td>Extinction of Plants/Animals</td>
<td>64%</td>
</tr>
<tr>
<td>Loss of Rain Forests</td>
<td>63%</td>
</tr>
<tr>
<td>Urban Sprawl/Loss of Open Space</td>
<td>57%</td>
</tr>
<tr>
<td>Global Warming</td>
<td>51%</td>
</tr>
</tbody>
</table>

* Percent that Worry a Great Deal/Fair Amount

Bottom Line: Americans largely recognize the importance of clean water to their lives. All four environmental issues referring to “water” in this year’s Gallup poll rank in the upper tier of environmental concerns, with air pollution a close fifth. What may surprise some, given the broad exposure the issue has received in recent years, is that global warming ranks lowest -- with barely half of Americans concerned and 48% only a little or not at all concerned.

Adapted from Lydia Saad’s Article, March 28, 2011. www.gallup.com

EPA Small Business Innovative Research (SBIR) Grants
Go to SBIR Grants

Advanced Contaminant Inactivation System for Drinking Water. Kimble, M.C.
Go to Article

Combination of Chlorine-Free Electrolytic and Photochemical Methods for Sterilization of Contaminated Waters. Barashkov, N.
Go to Article

Development of a Scalable, Low-Cost, Ultrananocrystalline Diamond Electrochemical Process for the Destruction of Contaminants of Emerging Concern (CECs). Arumugam, P.
Go to Article

Anaerobic Pre-Treatment for an Algae-Based Wastewater Treatment System. Horst, G.
Go to Article

In-Situ Imaging of Water Pipelines Using Ultrasonic Guided Waves. Mu, J.
Go to Article